

Joint University Program Presentation

Economic Impact of 9/11 on the Airline Industry

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| Topics

- ▶ A little bit about Booz Allen Hamilton
- ▶ What the future looked like before 9/11
- ▶ The impact of 9/11
- ▶ Opportunities for JUP

Booz Allen Hamilton is a leading management and technology consultancy, serving clients around the world

Booz Allen Hamilton Profile

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- ▶ Founded in 1914 (US Navy logistics was first assignment)
 - ▶ Global leader in management and technology consulting, for corporations and governments
 - ▶ Over 10,000 consultants, aligned to industries and functional practices
 - ▶ 100+ offices worldwide
 - ▶ Revenues: >US \$ 2 billion
 - ▶ Over 80,000 assignments
 - ▶ 12,000+ clients in 75 countries, 400 clients among Fortune 500
 - ▶ 85% of our assignments are with existing clients

We have worked with airlines around the world on a wide range of issues

Sample Engagements

Airline Travel Portal (Multi-Client)

Airline and Alliance Strategy

Network Strategy

Corporate Planning Systems and Processes

On-Time Arrival Performance

Operational Systems

Production Planning and Control

Maintenance / Operations Strategy

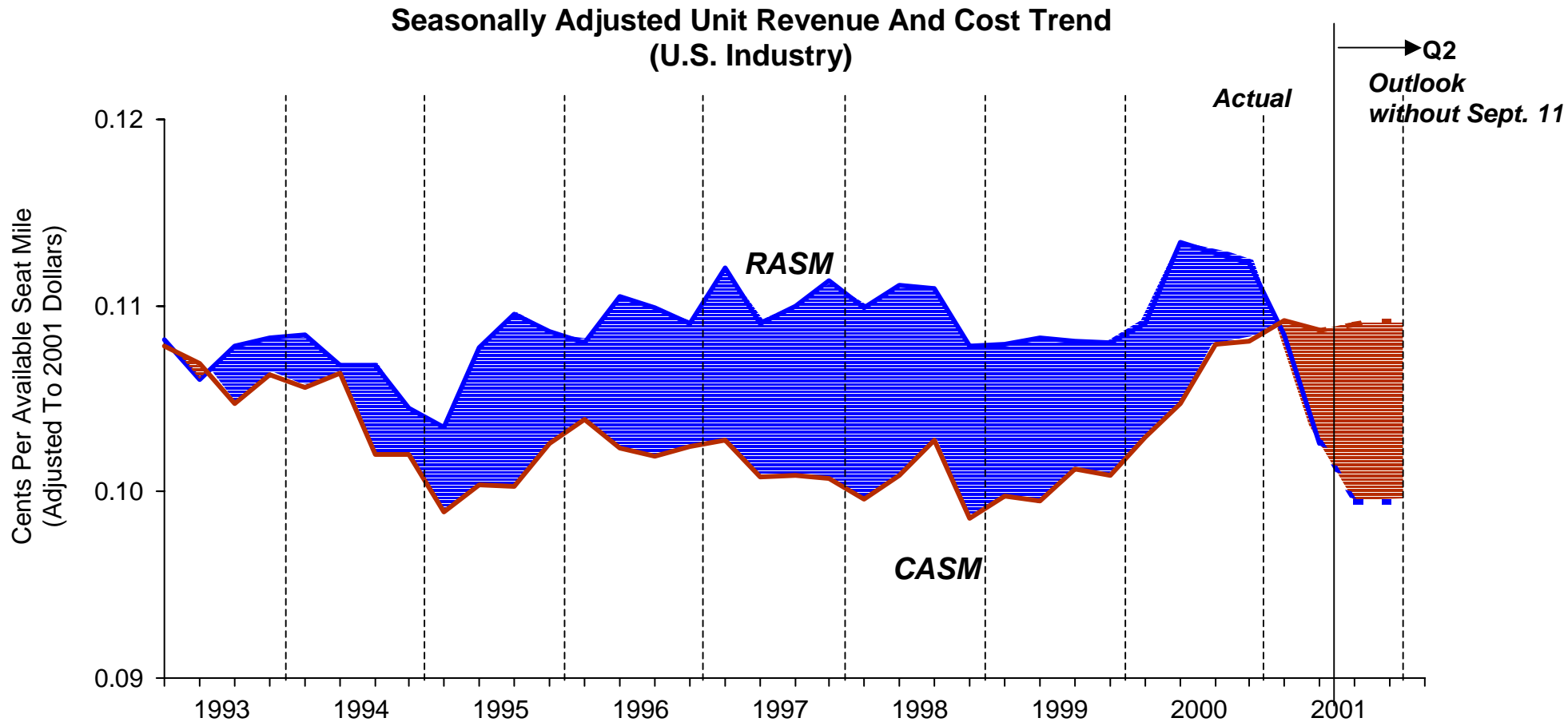
Technical Support and Data Processing

Corporate Organization

Facilities Strategy

What the Future Looked Like Before 9/11

Even before September 11, the airline industry was heading toward a significant recession



Note: Unit Revenue = RASM = Revenue per available seat mile, Unit Cost = CASM = Cost per available real mile

Source: DOT

Industry costs had been driven up by “industry leading” wage rates and rising fuel costs, unit revenues were falling from the height of the late 1990’s boom ...

1998–2001 Unit Cost Increases

- ▶ **Fuel price** increased from 0.9c per ASM in Q1 1999 to 1.6c per ASM in Q1 2001 in real terms⁽¹⁾
- ▶ **Labor cost** increased from 3.7c per ASM in Q1 1999 to 4.1c per ASM in Q1 2001 in real terms⁽¹⁾
 - UA pilots: 21–28% October ‘00 +4% per annum
 - NW mechanics: 24% March ‘00
 - DL pilots: 24–34% June ‘01
 - AA mechanics: 8–22% June ‘01
- ▶ ... with more to come
 - DL mechanics: 16%, deferred due to 9-11
 - AA pilots: 15–22% offered
 - UA mechanics: deadlocked
 - CO and NW pilots: January ‘02



CASM increase Q1 1999–Q1 2001: 0.9c/mile in real terms

Q2 2000–Q2 2001 Price Declines

- ▶ **Prices** were at a 10 year high Q2 2001
 - Dot com boom
 - Sustained 1990s growth (longest period without a recession in history)
 - 39% increase in travel from 1993 to 2000
- ▶ A new economic reality was setting in **lowering demand**
 - Recession
 - NASDAQ/stock market
 - Tightening of corporate travel budgets (40% reduction in some cities)
- ▶ Other revenue impacts
 - Channel proliferation/lower switching costs
 - Yield management sophistication



RASM decrease Q2 2001–Q2 2000: 9.5% decrease in real terms

... and the industry was facing significant other challenges

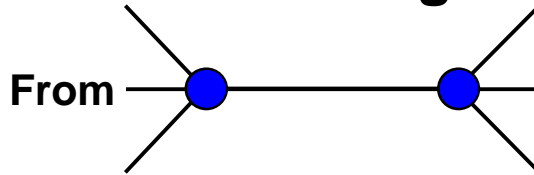
Other Challenges

- ▶ Emerging excess aircraft capacity
- ▶ Airport and ATC constraints
- ▶ New business models threatened traditional network carriers (UA, DL, etc.)
 - Regional jets
 - Low cost carriers
 - Fractional ownership
- ▶ Labour issues: contracts and economics
- ▶ Growing consumer dissatisfaction (service, delays) and threat of re-regulation
- ▶ Regulatory barriers to consolidation

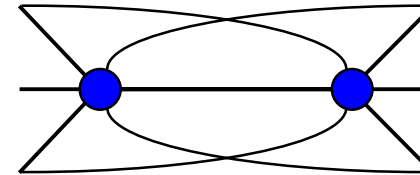
Pre 9-11 Responses

- ▶ Some consolidation (AA-TWA, Midway in Ch11)
- ▶ Deepening alliance relationships
- ▶ Cost reduction programs
- ▶ Distribution restructuring
- ▶ Investments in loyalty/CRM
- ▶ Operational initiatives (e.g. punctuality)

Airline networks were fragmenting

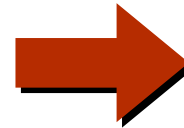


To



Drivers of Change

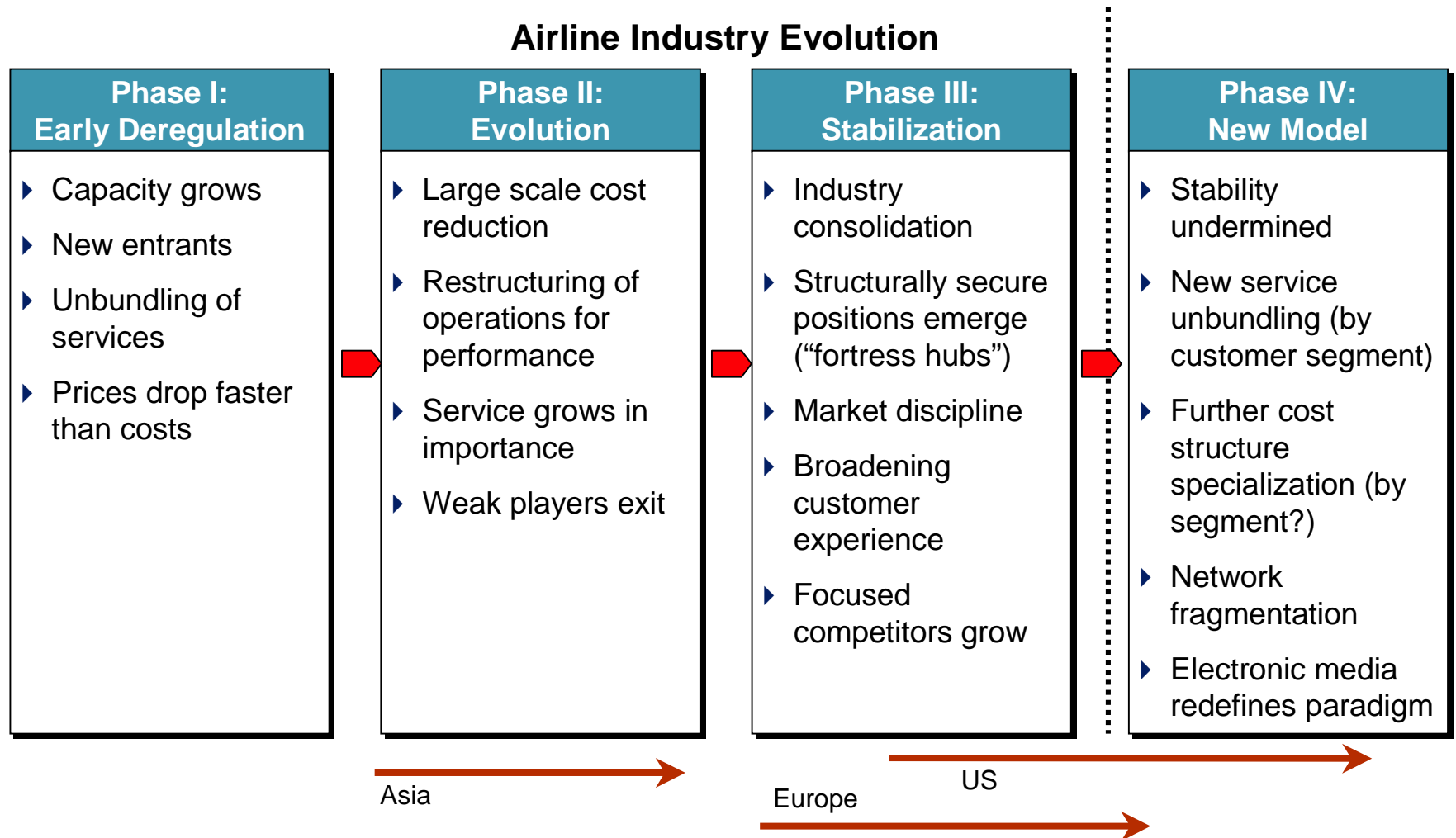
- ▶ Underlying market growth
- ▶ Consumer preference and willingness to pay for non-stop services wherever possible
- ▶ Emergence of long range medium gauge aircraft and efficient regional jets
- ▶ Opening of polar and Russian airspace
- ▶ Congestion at key hubs
- ▶ Congestion in central European and eastern US airspace



Consequences

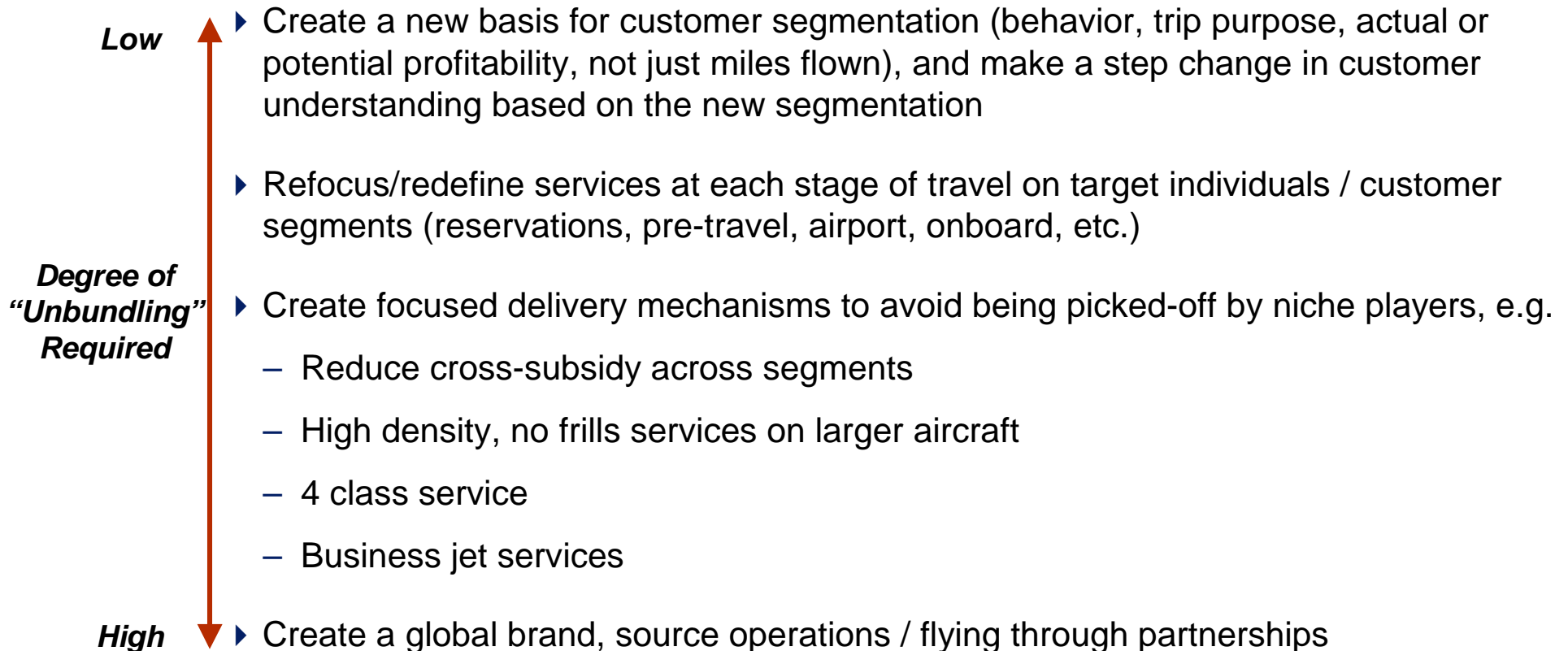
- ▶ Secondary hubs support more intercontinental services
 - US: Chicago, Atlanta, Houston change from domestic to intercontinental hubs
 - Europe: more peripheral hubs take on a greater role
- ▶ Secondary domestic hubs grow in importance
- ▶ Traditional gateways experience lower growth
- ▶ Majority of consumers fly non-stop
- ▶ Significant change for airlines with “fortress” hubs with 55-70% connecting pax

These pressures were moving the airline industry into a new phase of evolution



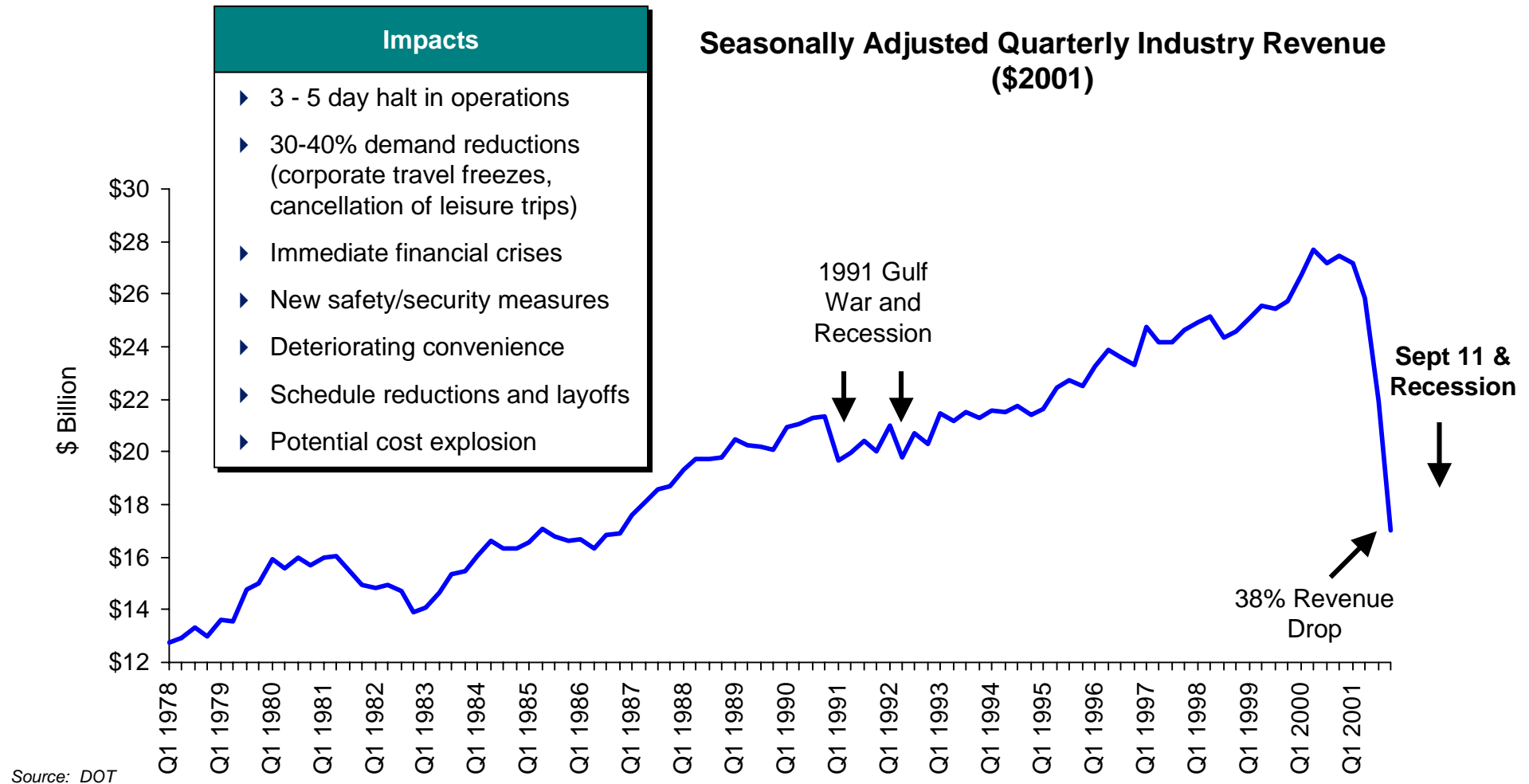
The industry was moving toward a new business model based on focused “delivery capabilities” targeted at finer customer segments

Possible Airline Moves



The Impact of 9/11

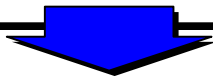
The 9-11 terrorist shock has caused the sharpest decline in industry revenues in history – 35% to 40%



Although capacity has been cut, unit costs have increased while unit revenues have decreased

Cost Reduction Actions

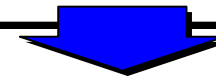
- ▶ Furlough of 90,000 employees (19% of those airlines that have announced layoffs)
- ▶ Grounding old fleets
 - Approximately 350 aircraft or 10% of the fleet, excluding Southwest and Alaska
 - UA: all 727-200s, 737-200s
 - AA: all DC9, 727-200s
 - CO: all DC10s, (747-200s, 727-200s), 27 MD80s
 - US: 40 F100s, 30 MD80s, 41 737-200s
 - DL: select 727-200s, 737-300s
- ▶ Travel agency fees



- ▶ Capacity down 16%
- ▶ Total costs down 12–13%
- ▶ Unit cost rise 3–4%

Revenue

- ▶ Passenger traffic off 22% domestically and 37% internationally in October (23.7% combined)
- ▶ Airlines have cut capacity by approximately 16%
- ▶ Yields in October estimated to have declined 19%
- ▶ “Fixed” cost structure encourages discounting
 - Virtually zero variable cost of one additional passenger - *if you have a seat, fill it*
 - Low variable cost of flying - *if you have a plane, fly it*



- ▶ Unit revenues (RASM): -25% (Oct)
- ▶ Now at -14-16% for CO

Uncontrolled collapse in 2002 is still a strong possibility

Scenario
<ul style="list-style-type: none">▶ Several bankruptcies in 2002–2003<ul style="list-style-type: none">– Initial bankruptcies trigger additional ones▶ The few remaining airlines left with fragile balance sheets▶ Creditors control the consolidation process<ul style="list-style-type: none">– Long delays, uncertain outcomes– Competitive structure determined by creditors and DOJ in a reactive mode– Major debt defaults (current debt of the top 7 network airlines is ~ \$70-75B)▶ More lay offs▶ Labor tensions exacerbated▶ Disruptions to business and major dislocations to communities served by bankrupt carriers

In summary, 9/11 has significantly increased the pressure on the industry to move to the next phase of evolution

- ▶ Consolidation will occur
- ▶ Distribution will be dramatically reshaped by the internet and other forces
- ▶ "Next generation" revenue management
- ▶ "Unbundling" of airlines, and more tailored delivery capabilities
- ▶ Continued network fragmentation
- ▶ Growth will resume

Opportunities for JUP

There are several areas in which JUP research could contribute

Problem	Potential JUP Work
How can airlines be restored (!) to financial health?	<ul style="list-style-type: none"> ▶ Complex optimization problems on both revenue and cost side that could be tackled using genetic algorithms, neural nets, multi-agent systems/game theory <ul style="list-style-type: none"> – Maintenance operations (especially unplanned) – Dynamic optimization of resources (crew/aircraft swapping) – Optimize airspace operations
How can technology ease capacity constraints?	<ul style="list-style-type: none"> ▶ Runway capacity increases (wake vortex detection, low visibility capability, cross-wind stability, STOL) ▶ New range/speed/field capabilities (e.g., SonicCruiser 2) - marry aircraft design with economic analysis
How can scarce resources be better utilized	<ul style="list-style-type: none"> ▶ Market-based approaches, validated through modeling, game theory, etc. <ul style="list-style-type: none"> – La Guardia problem – Ground delay program optimization